



INDIA – OPPORTUNITIES IN AN EMERGING SPACE JOURNEY



ABOUT US

BELLATRIX AEROSPACE IS AN INDIAN NEW SPACE COMPANY SPECIALIZING IN **IN-SPACE PROPULSION SYSTEMS**. WE PROVIDE COMPLETE SOLUTIONS FOR CONSTELLATION OPERATION OF NANO/MICRO/SMALL SATELLITES AND OFFER A RANGE OF OPTIONS FOR ORBIT RAISING AND STATION KEEPING APPLICATIONS FOR HEAVY SATELLITES.

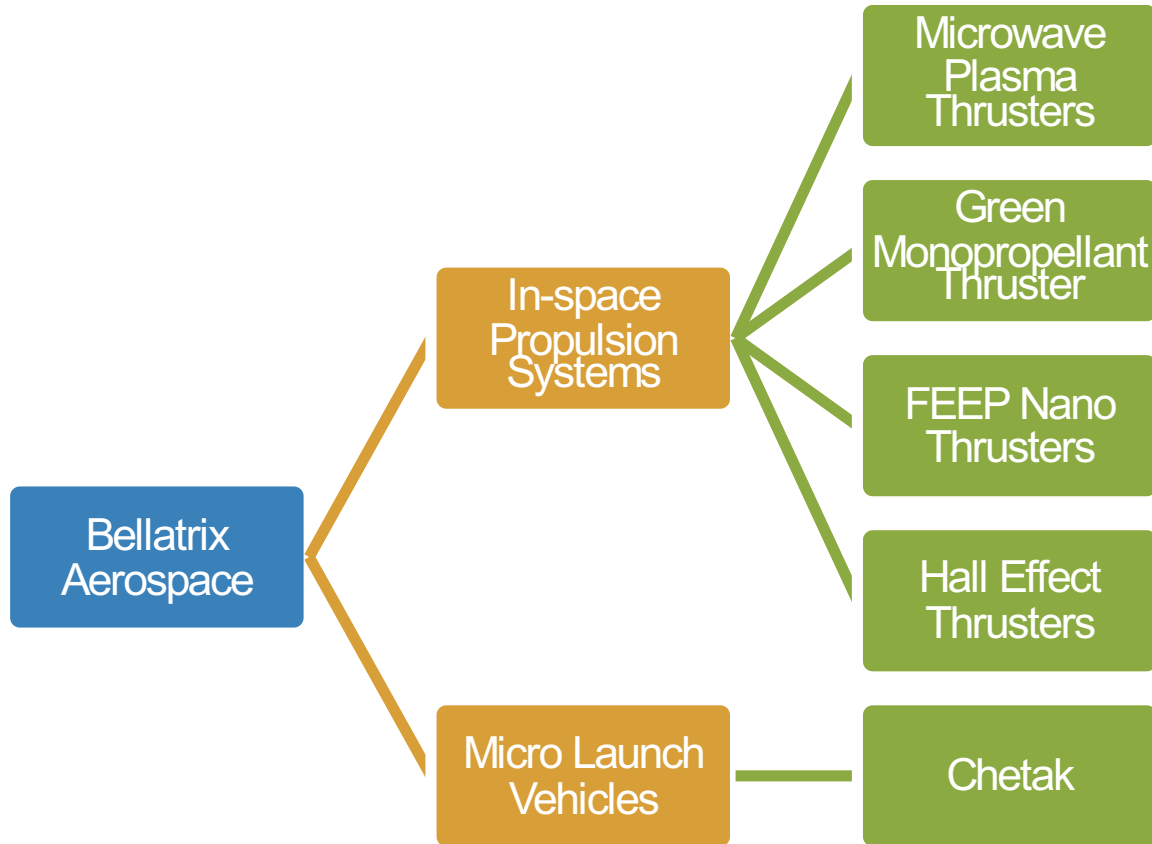
BELLATRIX IS ALSO DEVELOPING A NEXT GENERATION REUSABLE MICRO LAUNCH VEHICLE CALLED **CHETAK**.

BELLATRIX IS SUPPORTED BY **INDIAN SPACE RESEARCH ORGANIZATION (ISRO)** IN THE AREA OF IN-SPACE PROPULSION SYSTEMS.

VISION:

TO BE AN INNOVATION DRIVEN COMPANY WITH A VISION TO DEVELOP ADVANCED TECHNOLOGIES THAT MAKE SPACE MORE ACCESSIBLE.

WHAT WE OFFER



FEEP THRUSTER

Big on Performance, Small in Size

Simple, Efficient and Cost Effective, FEEP Thrusters offer precision thrust capability to Nano-satellites for orbital maneuvers. A highly miniaturised one piece solution, these thrusters can be configured as clusters to support high ΔV applications and De-Orbiting.



GMP THRUSTER

Green Monopropellants are here to Stay

HAN based Monopropellant thruster system provides an eco friendly high performance alternative to toxic Hydrazine. The 1N system is available in a modular configuration and can be scaled up for higher ΔV missions. A customizable 5N variant for higher thrust requirements is also on offer. In addition, these thrusters offer precise thrust control for a wide range of user applications from ACS to Orbital insertion.



HALL THRUSTER

Propelling the next generation satellite platforms

Reliable, High Performance Electric Propulsion system for precise orbit control and orbital insertion. A choice of Xenon or Iodine as propellant options are offered. Utilizing the high density specific impulse property of Iodine, these thrusters offer significant mass reduction by allowing additional payload capabilities. They are available in power levels ranging from 100W to 5kW.



MPT THRUSTER

Water powered satellite propulsion

Microwave Plasma thrusters optimized to run on Water as propellant. The choice of using water for propulsion makes these thrusters a viable candidate for future deep space missions requiring in-situ resource utilization. These thrusters have zero erosion characteristics and offer high thrust to power ratio. This enables a longer life and superior performance in comparison to traditional electric propulsion systems.

CHETAK

Chetak is a reusable micro launch vehicle under development at Bellatrix Aerospace. Designed with long term sustainability in mind, Chetak incorporates several unique innovations to make it a rocket of the future.

Engine Cycle: Electric Pump Driven

1st Stage: 35kN*5

Upper Stage: 41kN*1

KEY FEATURES

- Uses clean burning fuel Liquid Methane and Lox, which in turn reduces the maintenance interval upon recovery as compared to hydrocarbon and hypergolic alternatives
- Modular Concept to enable higher payload capacity
- Chetak employs a novel reusability concept. With reusability, Chetak will make small satellite launches more frequent and affordable than ever before.

Engine and turbo-pump are under development. Chetak is slated to launch for Q1 2022.



225 kg
Max. Payload
to 700km SSO

3 x 2 m
Payload Volume

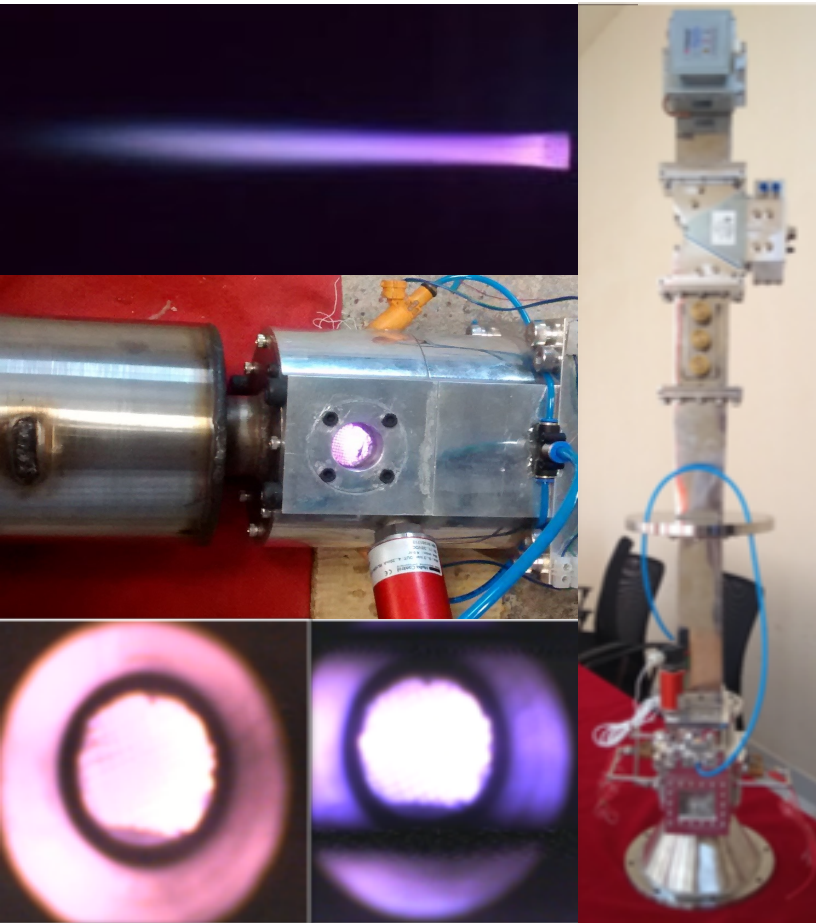
1st
Stage Reusable

Modular
Concept

Minimum Turn
Around Time

Carbon
Composite Body

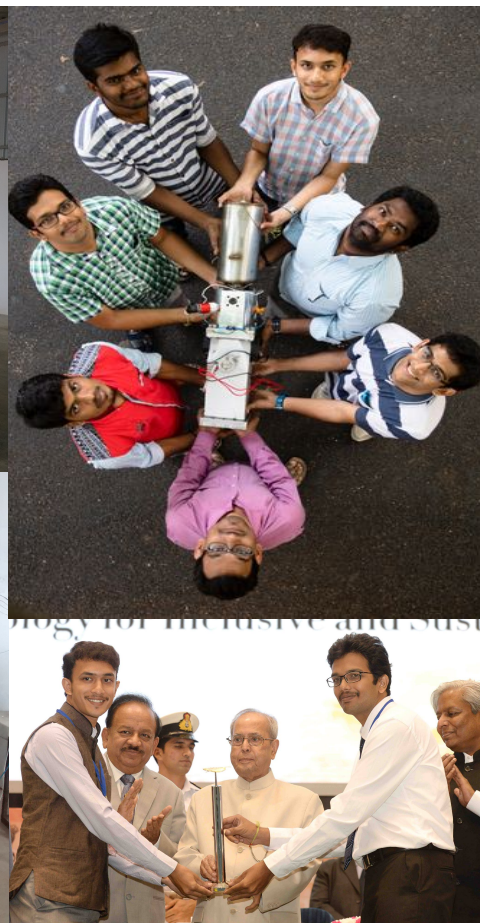
TESTING THE THRUSTER



TEST FACILITY



THE TEAM





OUR ROUTE **MAP**
FOR SUCCESS

Satellite Propulsion Systems



Orbital Launch Vehicles



Inter-planetary mining

INDIAN SPACE ECOSYSTEM IS GROWING

► Emerging New Space companies



**Exseed
Space**

**NewSpace
INDIA**



► Support from ISRO and Antrix in creating a space ecosystem in the country

► **Space Act**

ISRO and the Government of India is putting together a Space Policy Act to authorize and regulate private space activity in India. This will open up the private space ecosystem

► Strong push from the Government of India towards growth of private sector



WE BELIEVE THAT SPACE CAN BE
MADE ACCESSIBLE ONLY
THROUGH COLLABORATIONS.

THANK YOU

